

WHAT IS CLAIMED IS:

1. An electrode assembly for controlling the electrosurgical arc current from an electrosurgical generator, the electrode assembly comprising:

an electrode having a conductive surface connected to a source of electrosurgical energy;

a non-conductive, porous ceramic material substantially coating said conductive electrode, said coating having a thickness and including a plurality of pores dispersed therein having a diameter; and

wherein upon actuation of the electrosurgical generator, electrosurgical energy from the electrosurgical generator creates an initial arc current across the conductive surface of the electrode, the initial arc current having a diameter greater than the diameter of the pore such that the initial arc current is forced to split into a plurality of subsequent arc currents having a diameter smaller than the diameter of the initial arc current in order to conduct electrosurgical energy through the pores of the non-conductive, porous ceramic material.

2. An electrode assembly according to claim 1, wherein the electrode includes a width and a length and said non-conductive, porous ceramic material varies in thickness across at least one of the length and width of the electrode.

3. An electrode assembly according to claim 1, wherein the diameter of said pores of said non-conductive, porous ceramic material varies across at least one of a length and a width of the electrode.

4. An electrode assembly according to claim 1, wherein the number of pores per inch varies across at least one of a length and a width of the electrode.

5. An electrode assembly according to claim 1, wherein the diameter of said pores of said non-conductive, porous ceramic coating is within a range of about 100 to about 500 micrometers.

6. An electrode assembly according to claim 1, wherein the non-conductive, porous ceramic material is dispersed on a pair of opposing jaw members of a forceps.

7. An electrode assembly according to claim 6, wherein the thickness of the non-conductive, ceramic material varies across a length of each of the opposing jaw members.

8. An electrode assembly according to claim 7, wherein the non-conductive, ceramic material on each of the jaw members includes a first thickness dispersed near a distal and a proximal end of each jaw member and a second thickness dispersed between the proximal and distal ends of each jaw member, said first thickness being dimensioned to effectively seal tissues disposed between the opposing jaw members upon electrosurgical activation and said second thickness being dimensioned to effectively cut tissue dispersed between the opposing jaw members upon electrosurgical activation.

9. An electrode assembly according to claim 1, wherein the electrode is at least one of a roller ball electrode and a blade electrode.

10. A method for controlling the amount of electrosurgical energy to tissue comprising the steps of:

providing an electrode having a conductive surface connected to a source of electrosurgical energy;

coating said electrode with a non-conductive, porous ceramic material having a thickness and a plurality of pores dispersed therein each having a diameter; and

activating the electrosurgical energy source to create an initial arc current across the conductive surface of the electrode, said initial arc having a diameter greater than the diameter of said pores such that the initial arc current is forced to split into a plurality of subsequent arc currents having a smaller diameter than the diameter of the initial arc current in order to conduct electrosurgical energy through the pores of the non-conductive, porous ceramic coating.